CASES OF PLASTIC SURGERY.[1]

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CASE I. Emma L., aged six years, entered the Massachusetts General Hospital May 25, 1875. When four years old, while playing near a stove, her clothes took fire, and she was severely burned about the neck and chest, a cicatrix resulting which drew her head downwards to such an extent that her chin was only about an inch from the sternum. A broad band of cicatricial skin, of dense, unyielding structure, occupied the front of the neck, extending downwards from the lower border of the under jaw and as far back as the lobe of the left ear to the top of the sternum, left clavicle, and acromion. The prominence of the chin and profile outline of the neck were both obliterated. The lips could not be closed except by depressing the head till the chin nearly rested on the sternum, and the lower jaw was misshapen from the constant traction. There was constant dribbling of saliva. Behind the web extending from the ear to the left shoulder there was a deep pocket which concealed a considerable portion of sound skin. The cicatrix was quite healed, but was constantly breaking down in spots from the friction of the clothes. The whole face as high as the eyes had a drawn look, very much marring the expression. The patient was anæmic, poorly nourished, and was put upon " extra diet " and tonics for a week before the operation.

Operation, under ether. The cicatrix was divided carefully through its middle from the median line backwards to the edge of the web, the various bands divided as they sprang into prominence, till the head could be elevated to its normal position. A large flap was then taken from over the left shoulder blade, the apex extending down to the inferior border of the same, the pedicle being at the anterior border of the trapezius, as that point furnished the largest supply of blood-vessels to the skin from the posterior scapula and transverse cervical arteries. The flap was turned into position and secured by fine wire sutures. A few

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[1] Read before the Boston Society for Medical Observation.

small vessels required ligation. Hot-water dressings were applied. It was evident, next day, that a part of the flap would slough, and ultimately about half of it was lost. With that exception the case progressed well, and by skin grafting and granulation the wound closed in six months. At the end of that time a second operation was performed for the adjustment of the pedicle, which resulted well, and the patient was discharged a month later, wearing an apparatus to support the head in its new position and to prevent further contraction. The photographs,[1] taken before and after the operation, show the amount of improvement. The web from ear to shoulder is gone, the mouth can be kept closed in a comfortable position, the chin elevated, and the drawn expression of the face has entirely disappeared. There is no drooling of saliva.

CASE II. Mary R., aged fifteen. When three years old her clothes caught fire, and she was seriously burned on both arms, chest, and especially on the left side of the neck, where the cicatrix has so contracted as to draw down the chin nearly to the sternum. The lower lip is everted and the inferior maxilla deformed, the front teeth projecting directly forwards and nearly horizontal to the body of the jaw. The skin of the face is drawn downwards to such an extent that the left lower eyelid does not cover the lower half of the eye. There is incessant dribbling of saliva, and the lips cannot be closed by any effort.

First Operation. The patient was etherized with difficulty, having a feeble pulse and bad respiration. An incision was made from the left ear to beyond the middle line in front. The cicatricial tissue was carefully dissected through as it became prominent, band by band, opening up a wound four by six inches in extent. When the wound was ready for the transplantation of the flap the patient's pulse was so feeble, though very little blood had been lost, that it was deemed unsafe to go on with the operation. She was put to bed, with heaters and stimulant enemata, and the foot of the bed was raised. Four hours later, having rallied, and her pulse having improved, she was again etherized, and a large flap, covering nearly the whole scapular region and extending below the inferior angle, was dissected up and fixed in the wound with fine wire sutures. The pedicle was formed at the anterior border of the trapezius, for the same reasons as stated in the previous case. The large wound from which the flap was taken was closed by drawing the edges together with deep and superficial silk sutures. The patient was placed on the right side, with hot-water compresses over the flaps, ordered to be changed every ten minutes. She rallied well under stimulant enemata. A considerable portion of the end of the flap sloughed, and in all about one third was lost. The remaining portion united with

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[1] In the illustrations accompanying this paper the two upper ones are before operations, and the two lower after.
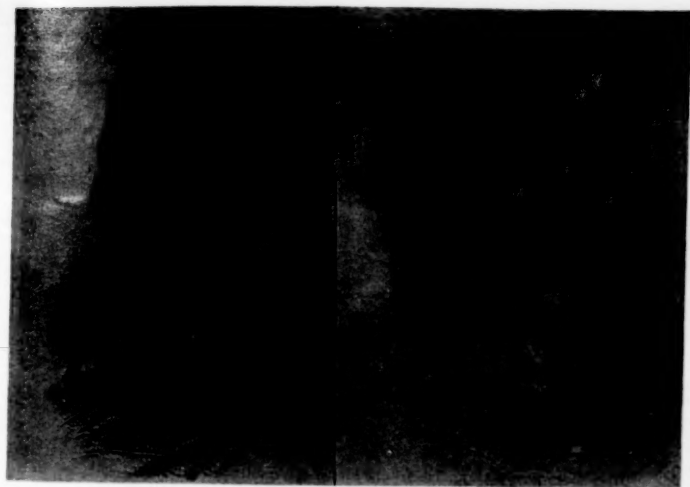
the adjacent sound skin and relieved the tension on the left side of the neck.

Second Operation, eleven weeks after the first, to remedy the deformity of the lip, which would be difficult to describe, but can be readily understood on inspection of the patient, whom I will show after the reading of this paper.

Third Operation, six weeks from the second. The sloughing of the extremity of the first flap left a considerable granulating surface under the chin, and the cicatricial tissue to the right of the median line still remained. The patient was etherized with difficulty, as usual. A careful and almost bloodless dissection was made, relieving the tense bands under the chin and front part of the neck. A large flap was then taken from between the breasts and over the sternum, extending down to the junction of the latter with the ensiform cartilage, the pedicle being over the clavicular portion of the pectoralis major at the end of the clavicle. It was turned up and fastened into place by silver sutures, and the wound from which the flap was taken closed. None of the transplanted skin sloughed, and four weeks later the wounds were healed, except a small granulating surface the size of a silver quarter. There was now an almost continuous band of sound skin running round the neck like a collar, but not of sufficient width to relieve the tension entirely.

Fourth Operation, four weeks after third. Several bands of cicatricial tissue which remained low down on the neck near the clavicle were divided, and an open wound about three inches long was made. This was filled by taking a flap from the left axilla and upper and outer portion of the left breast, and turning it up below and somewhat between the two other flaps, thereby propping them up and overcoming the tension, so as to allow an erect position of the head at the same time with closure of the mouth. Silver sutures were used to fasten in the transplanted flap, and the edges of the wound in axilla were drawn together. Adhesive plaster was placed around the body to support the edges of the wound in the axilla. Hot-water dressings were applied to the wound so as to keep the flap warm. No sloughing. Wounds healed well, and the patient was discharged six months after entrance, to return in a few months for a final operation.

Fifth Operation. The patient entered the hospital again seven months after discharge. The chin was drawn down by a V-shaped cicatrix, having its apex upwards, with soft and yielding skin on its sides. The V-shaped cicatrix just mentioned was first dissected out, so as to divide all the cicatricial tissue. On the side of the neck, just back of this and under the ear, there was a loose fold of skin formed by a wrinkle in the flap which was turned up from the scapular region in a previous operation. The skin was dissected up from the first incision

backwards to the fold mentioned, which was split so as to be unfolded. This allowed the flap to be brought forward to cover the wound made by removing the cicatrix. The edges were adjusted by fine silver sutures. A compress wet in warm carbolized water was applied, to be changed every hour, and the parts were kept warm by being covered with cotton batting. After the operation there was no perceptible pulse at the wrist, but it soon improved after an enema of brandy. No sloughing occurred, and the patient was discharged from the hospital one month from the date of last entrance and sixteen months from the first operation. The projecting teeth had been extracted and some artificial ones substituted. She was able to hold the head erect and turn it very considerably to the right. She could keep her mouth closed, and there was no dribbling of saliva. There was not the slightest granulating surface left of all the large wounds made.

Case III. Mary D., aged forty-eight, three months previous to admission to hospital was burned, slight cicatrices resulting on each elbow, wrist, leg, and breast. There was one on the left side of the face and neck, extending from behind the left ear forwards to just across the median line, which drew down the chin and jaw, and depressed the left side of the mouth slightly. The cicatrices were tender, and ulcerated in small patches. Previous to her entrance into the hospital she had been treated by the " stretching method."

Operation under Ether. The tension of the neck was overcome by the thorough removal of the cicatrix from between the body of the jaw above and the sternum and clavicle below. A large flap was taken from the region of the right pectorals and breast, with the pedicle to the outside and just above the sterno-clavicular articulation. It was placed in position and retained by fine wire (silver) sutures along the superior and left borders, the inferior being left free. The subcutaneous fat was so thick that the flap looked like an enormous double chin, but as the vessels are so largely contained in this tissue it was deemed unsafe to pare it off. The whole was covered with hot compresses and cotton batting. The arms were pinioned to the sides to avoid possible traction on the pedicle. The large wound over the front of chest was closed by sliding with silk sutures. The whole flap did well, and the record of the case a month later states that there was complete union throughout the superior and posterior borders of the flap. The lower border was never stitched to skin, and the whole new skin is much reduced in thickness. On the upper edge of the pedicle are two puckers of skin formed partly by old cicatrices and partly by the turning about of the transplanted flap.

Second Operation. .The pedicle was cut off, cicatricial lines and puckers were removed, and the newly detached end of flap united to the surrounding healthy skin, and the whole secured by fine wire sut-

ures.   Slight hæmorrhage from small vessels controlled by torsion and hot water.   Damp compresses covered with cotton batting applied to flap.   Recovered slowly from ether.

A few minute sloughs followed an attack of erysipelas, but beyond that she had an uninterrupted recovery.   The flap gradually grew thinner, and assumed the character of the contiguous skin.   She was discharged, well, four months after admission.

CASE IV.   Walter C., aged twenty-nine.   Cicatrix of face.   Twelve years ago he had abscesses over the angles of both jaws, which from their history and the appearance of the cicatrices seem to have been lupoid in character.   The principal scar is over the left masseter region, and is disfiguring from the fact that no hair grows from it as from the surrounding parts.   It is three and a quarter inches long and one and a half inches wide.

Operation with Ether.   An oval incision with pointed ends was made to surround the whole cicatrix, which was carefully dissected out entire.   By sliding the edges of the wound they were brought together in a straight line, and held by fine wire sutures very near each other. Manual pressure was applied over the wound for two consecutive hours to prevent hæmorrhage under the skin.   At the end of that time the edges were glued together and to the tissues beneath, and all oozing had ceased.   The whole wound healed without a drop of pus, and the patient was discharged four days after the operation, with a straight line for a scar instead of a cicatrix one and a half by three and a quarter inches broad.

As to suggestions concerning operations of a similar nature : —

(1.)   Dissect out, if possible, all cicatricial tissue.

(2.)   The pedicles should be arranged so as to get the largest supply of arterial blood possible.

(3.)   Flaps thick with adipose tissue do well and the fat is absorbed, and the flap finally assumes the character of the surrounding skin.

(4.)   Compression of the parts operated upon prevents a collection of blood underneath, and hastens the union of the flap to the parts beneath.

LECTURES.

ON THE PHYSIOLOGY OF THE SPINAL CORD.

DELIVERED AT THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK,
BY PROF. JOHN C. DALTON.

[REPORTED BY P. BRYNBERG PORTER, M. D.]

II.

THE TRANSMISSION OF MOTOR AND SENSITIVE IMPULSES IN THE SPINAL
CORD AND NERVES.

GENTLEMEN, — Owing to the industry and patience of two of my
assistants, Mr. Fisher and Mr. Weed, I can now present to you a fresh
dissection of the dog's spinal cord *in situ*, and from this you can get a
much better idea of its gross appearances than from any verbal descrip-
tion.   The membranes have been removed, and you can recognize at a
glance the cervical and lumbar enlargements and various other anatom-
ical features of the cord which I described yesterday.   As the dorsal
surface of the cord is now exposed, you distinguish the posterior roots
of the spinal nerves as they are successively given off from the cord.
I have also here some transverse sections of the human spinal cord
arranged for microscopical examination, some of which have been pre-
pared by Dr. Delafield and some by Dr. Arnold.   They are altogether
the best which I have seen anywhere, and in all of them, I believe, you
can see the deep origin of the spinal nerve fibres, those of the anterior
roots being especially well shown.

Having gone through with these anatomical considerations, let us now
take up the subject of the transmission of motor and sensory impressions
through the spinal cord and its nerves.   The cord is, first and foremost,
an organ of nervous communication between the brain on the one hand
and the muscles and integument of the trunk and limbs on the other.
We desire to ascertain also, if possible, which of its portions serve for
the communication of voluntary motion, and which for that of sensation.
This can be done, as we shall see in a few moments.   But first I would
explain that in the experimental determination of the functions of any
portion of the nervous system we habitually employ two different meth-
ods.

The first is as follows: after having exposed the part to be investi-
gated, we apply to it some form of artificial stimulus and observe the
effect.   Two results may follow in such an experiment.   First, the
stimulus may cause a muscular contraction.   Whenever motion is pro-
duced in this way by the application of a stimulus to any part of the
nervous system, the part so reacting is said to be " excitable."   This
term, therefore, expresses the quality by which a nerve, on being ex-
cited, causes motion in the corresponding muscles.   Secondly, the

stimulation of a nerve may produce, not motion, but sensation. This sensation will be a painful one if the stimulus be excessive ; tactile or slight if the stimulus be moderate in degree. The part, in this case, is said to be " sensitive." These terms, excitable and sensitive, of course have no reference to the condition of the animal itself, but only indicate the special physiological properties of separate parts of the nervous system. They are very convenient terms to use in treating of this subject, and it will be well for us to bear their meaning always in mind.

The other method of experiment, which at first might seem of comparatively little service and yet in reality is the more useful of the two, consists in dividing or destroying that part of the nervous system which we are to investigate, and noting the results which follow. Suppose, for instance, that we have a spinal nerve going to a certain muscle, and that we divide that nerve by a transverse section. We shall find that by this operation we have abolished the power of voluntary motion in the muscle, or, in other words, have destroyed the function of the nerve. On the other hand, if the nerve be one of sensation, its division will abolish the power of sensibility in the parts to which it is distributed. In these cases, while either motion or sensation is done away with in a particular part of the body, there has been, nevertheless, no injury done to the nervous centres. It is only the nerve fibres exterior to them which have been cut off. The results obtained in these instances correspond with those produced by the application of a stimulus. When the stimulus is applied to a nerve of motion, motion is excited, and when it is applied to a sensitive nerve the result is a sensation. Furthermore, when a nerve of motion is divided the power of motion is destroyed, and when a nerve of sensation is divided sensibility is abolished. The two methods of experiment here simply corroborate each other. Nevertheless, the method by division or destruction of a part is, in many cases, more conclusive than that of its artificial stimulation. Suppose, for instance, that we have uncovered some deep-seated part of the nervous system, such as the anterior root of a spinal nerve or the anterior column of the cord, and that the application of a stimulus causes convulsive motion. This certainly shows that the anterior root or the anterior column is capable of exciting motion, but it does not prove it to be the normal and exclusive channel for the passage of the motor impulse. Again, if we irritate some other part of the nervous system, and thus produce a sensation, it shows, indeed, that part to be sensitive, but by no means proves it to be the normal channel for tactile sensations. On the whole, therefore, the destruction or division of a nerve is the most definite means for determining its functions. If you cut off a nerve and find that as a result there is loss of voluntary motion in the region to which it was distributed, you may feel assured that the nerve was the real

channel for motor impulses; and the same is true in regard to the channels for sensation. The negative result in these cases is more conclusive than the positive one afforded by stimulation.

But there is one source of error in this connection which we should always remember. If we destroy or divide any part of the nervous system, and find a loss of motion or sensation as the result, we must not conclude *immediately* that the part was the natural channel for motion or sensation, as the case may be; because the effect produced may possibly be a temporary one, due to the shock of the operation. If so, after a short period the interrupted function may be restored, notwithstanding the section of the nerve tissues. But if the part in question be really the channel of nervous communication, its function can never be restored until the injury has been repaired by some restorative process. Certain parts, therefore, of the nervous system may be for a time paralyzed by sympathy, on account of injury inflicted upon other neighboring parts; and this fact must be borne in mind in estimating the results of any experimental operation.

We will now go on to examine particularly the transmission of motor and sensitive impulses in the spinal cord and its nerves, beginning with the functions of the nerves and the nerve roots. I need not remind you of their anatomical characteristics, as we have so recently dwelt upon them, but will proceed at once to inquire, What is the result of applying to them an artificial stimulus? The effects thus produced are simple and definite. If any irritant, such as the point of a steel needle or a slight galvanic discharge, be made to act upon the anterior root of a spinal nerve, a muscular contraction is at once excited. There are several important points to be noticed in regard to the character of this muscular action.

In the first place, it is local. It is confined to a particular circumscribed district, namely, the part to which the motor fibres of that particular nerve are distributed.

Secondly, it is instantaneous and transitory. The muscular contraction follows immediately the application of the stimulus, and as instantly ceases upon its withdrawal. It is repeated with mechanical precision as often as the nerve root is stimulated. It is like the striking of a door-bell when the knob is pulled at the street entrance; and it has every characteristic of an involuntary, unconscious action, produced directly by the nervous connections of the part.

Thirdly, it is unaccompanied, as a rule, by sensation. When a sensation is produced, it is very slight in comparison with the muscular contraction, and depends on causes which are too complicated to mention at this time.

Next, What is the effect of *dividing* an anterior nerve root? Directly the opposite of the preceding, namely, a local paralysis of voluntary mo-

tion, confined to that part of the muscular system to which the nerve is distributed. No other part is affected. Thus we see that in this instance the two methods of experiment correspond with and explain each other. When stimulus is applied to the nerve root a local convulsion results, and when the nerve root is divided there is a local paralysis. Furthermore, we find that if the nerve root be divided and a stimulus be applied to it beyond the point where it has been severed, the same muscular contraction is produced as before, showing that none of the physiological properties of either the muscle or the nerve have been destroyed by the operation.

On the other hand, if we leave the anterior nerve root undisturbed and apply a stimulus to the posterior root, sensation is at once excited, and this sensation is limited to those parts of the integument to which the nerve is distributed. When motion is also excited, as sometimes happens, this is obviously due to a cause acting through the nervous centre. Furthermore, if the posterior root be divided, it is followed by anæsthesia in the corresponding parts. The anterior roots of the spinal nerves are therefore excitable and not sensitive, while the posterior roots are sensitive and not excitable.

If, instead of dividing the anterior root of one nerve only, we divide those of all the nerves in some particular portion of the spinal cord, as, for instance, the lumbar region, there will be paralysis of motion in the entire limb to which these nerves are supplied, sensation remaining undisturbed; while, on the contrary, sensation will be destroyed in the same part if we divide the corresponding posterior nerve roots. It is not necessary to go on multiplying these examples, since the facts are equally true for the nerves given off from every part of the spinal cord. We see, then, that the anterior roots are motor and the posterior sensitive, absolutely and exclusively. The former are the normal channels for motion, and the latter for sensation, and these functions are never interchangeable.

Here is a diagram representing the double origin of a spinal nerve, and the union of its two roots into a single trunk. The terminal branches of the nerve are finally distributed to the sensitive integument on the one hand and the voluntary muscles on the other. Every spinal nerve has, therefore, two sets of terminations, and hence we find in our books of descriptive anatomy the smaller branches distinguished, as either muscular or cutaneous nerves. Beyond the junction of the two roots of a spinal nerve its motor and sensitive fibres become closely intermingled, yet their functions remain distinct. In this part of its course the nerve is, therefore, both motor and sensitive, and so continues until approaching its termination, where it again separates into motor fibres destined for the muscles, and sensitive fibres destined for the integument. To recapitulate: the motor and sensitive fibres are (1) distinct

at their origin, (2) in the middle portion of the nerve they are inter-mingled, and (3) at their terminations they again become distinct. A nerve containing both motor and sensitive fibres is called a *mixed nerve*, and is capable of performing both functions. There are some nerves in the body exclusively sensitive, and others exclusively motor; but the spinal nerves, without exception, are all of the mixed variety, so that when a stimulus is applied to the trunk of any one of them, both sensation and motion are the result. For the same reason, a division or destruction of the nerve trunk causes both paralysis and anæsthesia in the parts to which it is distributed. These are facts which are well attested by plain experimental results, and about which there is no doubt whatever.

We now come to consider the functions of the cord itself, as a medium for the transmission of motor and sensitive impulses. But here we find at once a great difference in the amount and precision of our knowledge, as compared with what we know of the spinal nerves. If we regard the spinal cord as an entire organ, our knowledge of it is definite enough. As a whole, it is the exclusive channel of both sensation and voluntary motion between the brain and the parts below, and it certainly contains all the elements necessary for their transmission. If it be divided transversely, there is instantaneous loss of conscious sensation and of voluntary motion in all parts of the body below the level of the injury. It is therefore the only means for the transmission of these nervous impulses to and from the body and limbs. So far everything is plain and simple, but we cannot remain satisfied with this amount of knowledge

The spinal cord is not homogeneous. If it were, we should probably find no difficulty in understanding its functions. But it is made up of both gray and white matter; and we wish to know, if possible, what particular parts of the cord are concerned in the production of special nervous phenomena. This has been ascertained with more or less precision in regard to some points, while there is as yet no certainty whatever in regard to others. To begin with, What parts of the spinal cord are sensitive to artificial stimulus, and what parts are excitable? First, in regard to sensibility: the posterior columns are found to be always sensitive, but this result is accompanied by many modifications, and all parts of these columns are not equally sensitive. Thus, their superficial portions are decidedly more sensitive than their deep-seated portions. One would naturally anticipate, when the point of a needle is inserted into such a sensitive column, that the deeper it entered the more acute would be the sensation. But just the opposite of this is true. Another fact, which has been frequently noticed, and which is agreed upon by all observers, is that the inner or median portions of the posterior columns have comparatively little sensibility, while the immediate neighborhood of the posterior nerve roots is by far the most sensitive of all parts of

the column. We naturally inquire, therefore, whether the peculiar sensitiveness in that locality may not belong to the fibres of the posterior nerve roots, rather than to those of the posterior columns themselves. There is a difference of opinion in regard to this point, but it is at all events beyond dispute that the greatest sensibility of the posterior column is located at the emergence of the nerve roots. Furthermore, the surface of the lateral columns in the neighborhood of the posterior nerve roots is also found to be sensitive, while the remaining parts of the same columns are not so. When motion takes place as the result of the application of a stimulus to the posterior columns, it is not directly excited thereby, but is due to a reaction of the general system.

Secondly, if the artificial stimulus be applied to an anterior column, convulsive movement is excited. The most that can be said, however, in regard to this matter is that the anterior columns are, on the whole, excitable; for there is not the same certainty, thus far, about the functions of these parts of the cord as about corresponding parts of the spinal nerves. We may say, therefore, that, as a rule, sensitiveness is characteristic of the posterior, and excitability of the anterior columns of the cord. The lateral columns are excitable in their anterior portions, and more or less sensitive posteriorly, in the vicinity of the origin of the posterior nerve roots. On the other hand, no part of the gray matter of the cord is either sensitive or excitable. When a needle is plunged into any external portion of the cord and then carried farther down into the central gray matter, no difference of effect is produced thereby, either in regard to motion or sensation.

What bearing have these facts upon pathology and practical medicine? The connection is a very important one. We have found that irritation of the posterior nerve roots causes sensation, and of the anterior nerve roots convulsive movement. Now suppose an inflammation of the meninges at the posterior portion of the cord. This irritation will produce painful sensations in remote parts of the body, though there may be no inflammation in those parts themselves to account for it. This is especially true in meningitis, because the irritation there is a superficial one. On the contrary, a meningeal inflammation affecting the anterior portions of the cord and its anterior nerve roots will excite involuntary convulsive movements in corresponding parts of the body or limbs. Practically, however, the inflammation in such cases spreads too rapidly to be confined to either the anterior or the posterior portions of the cord. As a rule, we have both pain and muscular contraction as symptoms of meningitis. Yet in a certain proportion of cases there is, at first, muscular contraction without pain, and in others pain without muscular contraction.

The next question that meets us here is this, Can we determine what are the special channels for voluntary motion in the spinal cord, and

what are those for conscious sensation? This question requires a further set of investigations. From the experiments already described we might be led to suppose that the posterior columns are channels for sensation. But this is not the case. For, if the posterior columns be divided, the animal still retains the power of sensation in all parts of the body below the level of the injury. The posterior columns, though possessed of sensibility themselves, are therefore certainly not the ordinary channels of its transmission from below. Furthermore, if the anterior and lateral columns be divided, sensation will still remain; so that we conclude again that neither the anterior nor the lateral columns are the natural channels for sensation. Sensation must be communicated, therefore, by means of the gray matter of the cord. But this transmission by the gray substance of the cord is not like the simple conducting power of its white tissue. The probability is that the gray matter acts as a temporary dépôt for the reception of sensitive impulses brought by the nerve fibres terminating in its substance, and then transmitted by other similar fibres to the brain.

Next we take up the transmission of voluntary motor impulses. Cutting the posterior columns has no effect on this; but if we divide the anterior and lateral columns, voluntary motion is lost below the level of the section. Yet the gray matter is concerned in this act as well as in sensation, for in order that voluntary power may be preserved intact it is found essential that the gray matter of the cord remain uninjured. If the gray matter be destroyed, voluntary motion is either impaired or altogether lost. Therefore, we are forced to conclude that the gray matter is also concerned in transmitting the impulses for voluntary motion. In the dorsal region of the cord the anterior columns are larger in proportion to the lateral columns, and in the cervical region the lateral columns are larger in proportion to the anterior; and the results derived from both physiological experiment and pathological study correspond with this relative size of the two columns in these situations. In the dorsal region an injury to an anterior column produces a greater amount of paralysis than that of a lateral column; while in the cervical region a greater amount of paralysis is caused by injury to the lateral than to the anterior column.

This is all that we know with certainty in regard to the transmission of voluntary motion and conscious sensation by the spinal cord and its nerves. You see that there is a great difference between the mode of transmission of such impulses through the spinal cord and through the nerves; no doubt, because the cord is complex in sructure, while the nerves are comparatively simple. An additional reason why nervous transmission is more complicated in the cord is that one part of the cord is liable to react upon another part, and thus sensation or motion may be interfered with or suspended by the reaction of parts not directly concerned in the transmission of the impulse.

The principal points which we have reason thus far to consider established are as follows: —

(1.) That the anterior roots of the spinal nerves are motor; (2) that the posterior roots are sensitive; (3) that the anterior and lateral columns of the cord are mainly motor, but also that the gray matter is essential to the act of voluntary motion; and (4) that while the posterior columns of the cord are themselves sensitive, the transmission of ordinary sensitive impressions takes place in some way through the gray matter.

CASES OF STRANGULATED HERNIA.

BY ALEXANDER JACKSON, M. D., PLYMOUTH.

THE following cases of strangulated hernia are presented for publication because they illustrate the emergencies which occasionally occur to the general practitioner in the country, when he is compelled to act quickly and decisively, and to rely upon his own resources. These five cases comprise all the instances of this serious surgical affection that have fallen under the writer's immediate observation during a residence of thirty-four years in Plymouth. The uniform success which attended their treatment was not due to any originality of surgical method, but it depended, apparently, on the following favorable conditions: first, an early cessation of efforts at taxis; second, a timely resort to the knife; third, wholesome hygienic surroundings; and, fourth, a withholding of active medication in the after-treatment.

CASE I.   January 11th, Mrs. J. J. F., aged fifty-five years, sent for me on account of a very obstinate and severe cough, which had brought down a previously existing hernia of the right side, and so strongly packed it that she could not return it, as she had been accustomed to do. I found a femoral hernia about the size of half an egg; it was very hard and tender, having been twenty-four hours in that condition. After making all proper efforts to reduce it, but in vain, I sought advice from Dr. T. Gordon, who, after a long trial, was also unsuccessful, and acknowledged the necessity of resorting to the knife. The consent of the patient and her friends having been obtained, she was etherized and placed in position; an incision from the direction of the umbilicus downward and outward over the centre of the tumor was made, and by careful dissection the sac was reached and opened; it was found to contain a fold of intestine, very dark purple in color. The stricture was found at the edge of Poupart's ligament, a few fibres of which I divided. The bowel was then returned. The wound was closed, several sutures being taken, and was covered with compresses secured by bandages, the patient put into bed, and an opiate given. She passed a good night, and was comfortable till the afternoon of the 13th, when

she had a severe chill, followed by nausea, fever, and pain in the abdomen, which became swollen and tender. Opiates, with three or four doses of calomel of five grains each, at intervals of four hours, gave relief. Opiates were continued occasionally during the third, fourth, and fifth days, when a small quantity of castor-oil was given, which acted well, and was followed by an abatement of all the unpleasant symptoms. From that time the progress was good, and at the end of the third week the patient considered herself well; she continued living in this town for two years afterwards, and remained well meanwhile.

CASE II. July, 1863. Mrs. L. S., a lady about sixty years old, had had a direct inguinal hernia of the right side for twelve years. For a long time she had been unable to return it entirely. Recently it had increased in size in consequence of a hard cough, and as it was now becoming painful I was sent for. I found the tumor as large as an ordinary fist; it was hard and tender, and there was some nausea. After repeated attempts at taxis by myself and by my friend Dr. Gordon had failed, I resorted to the operation for opening the sac. A large fold of intestine was found, part of which, covering a space nearly or quite two inches square, was adherent to the sac. Careful dissection succeeded in overcoming the adhesion without injury to the intestine, which, after division of the stricture at the ring, was returned. The wound was closed and secured in the usual way. After a rather slow progress, during excessively hot weather, and without any very serious complications, in about four weeks, Mrs. S. recovered. There was no return of the hernial tumor until four years after, when recovering from a fall the entire length of a flight of stairs she found her former acquaintance in its old place; it gave her no farther trouble during the eight remaining years of her life.

CASE III. May 13, 1865, I was requested by Drs. Gordon and Hubbard of this town to visit Mr. J. A., a strong and vigorous man about thirty-five years old, on account of a large right inguinal hernia that had hitherto resisted all efforts to reduce it. The hernia had existed for several years, but had never before given him serious trouble. A violent cough had caused a larger and more painful development of the tumor than usual; this led him to send for aid. After some farther but ineffectual attempts to return the bowel by taxis had been made, I was requested to operate. The sac was opened and found to contain two large loops of small intestine, each about nine inches in length. After the division of the stricture, which was at the inner ring, I attempted to return the upper loop, and not being able to do so I lifted it up and tried the lower one and succeeded; thereupon the other loop was easily returned. The wound was closed, and, without any serious complication, the patient recovered in about three weeks, and has continued well to the present time.

CASE IV.   December 9, 1871, I was asked by Dr. Jones, of Kingston, to visit with him Mrs. E. C., a woman seventy-two years old, short and stout, and weighing over two hundred pounds. She had an umbilical hernia as large as an infant's head; it was hard and tender, and resisted all efforts to reduce it. Symptoms of strangulation becoming manifest Dr. Jones requested me to operate. The patient was etherized, and an incision over the tumor from above downwards was made and continued through the integuments to the sac, which was opened, exposing omentum and a large quantity of small intestine. Just at this point the bedstead broke down, stopping all proceedings till the patient was leveled up again, a matter of no small difficulty with such a weight. The stricture at the umbilicus was divided upwards, when the contents of the sac were with difficulty returned. The patient eventually recovered so as to be about again, and lived two or three years, dying from some other cause.

CASE V.   I was called October 10, 1877, to see Mrs. McL., a woman about fifty years of age, whom I found to have a large femoral hernia of the right side; it was recent, and had been brought down that morning by sneezings. It was firmly packed, hard, and tender, and after a long trial I could not reduce it. Dr. Gordon was called to see her with me in the afternoon, and after a lengthy effort agreed with me that no further attempt to return the bowel should be made till the next day. An anodyne was given that night, and an enema was ordered to be administered early the next morning. She slept somewhat during the night, and on our arrival the next day we learned that the enema had produced a large dejection of fæcal matter. We found the hernia as we left it, but more tender, and in such a condition as to forbid any further attempt to reduce it by taxis. The operation with the knife was proposed to her and her family ; with their consent at length obtained, she was etherized and placed on the table. I opened the sac, which contained six or eight inches of small intestine. The stricture was found to be at the lower edge of Poupart's ligament, which was divided sufficiently to allow me to return the bowel. The intestine was somewhat dark, but had no bad appearance. The wound was immediately closed with five sutures, and was covered with dry compresses kept in place by bandages. The patient was placed in bed, and nothing was given her except very small quantities of gruel and cold water occasionally. That evening and the next morning the temperature was a little above the normal point; the pulse was 90 ; there was no pain, nausea, or unpleasant feeling except a little soreness in the vicinity of the wound ; the patient slept well. From that time the case progressed favorably. A small, constipated dejection occurred on the fourth day, and a similar one on each succeeding day; after the seventh day the stools increased in quantity and became softer. The stitches

were removed on the fifth day, when the wound was found firmly closed. The appetite returned on the fourth day, when the quantity of liquid food was gradually increased, one tumblerful at a time being added. On the tenth day she had solids. Subsequently her progress was rapid, and on the thirteenth day after the operation she was dressed and on the lounge.

RECENT PROGRESS IN URINARY SURGERY.

BY T. B. CURTIS, M. D.

The Recurrence of Calculus after Lithotrity. — The operation of lithotrity, says Sir Henry Thompson,[1] is occasionally followed by chronic cystitis, with painful symptoms, and by frequently recurring production of cysto-phosphatic deposits. " There are two points to which it is necessary to pay particular attention in order to avoid the unfortunate result in question : the first is not to apply the crushing operation to any stone of a size beyond that which may be termed strictly moderate, — a term which it is difficult to define, but which is designed as a caution against regarding lithotrity as desirable for calculi of large size ; the second is not to delay unnecessarily subsequent repetitions of the sitting when the stone has once been attacked by the lithotrite."

That which has happened to patients who are troubled long after the operation with recurring concretions is without doubt, according to Sir Henry Thompson, a serious injury to the mucous membrane of the bladder, the injury in question being caused, in his opinion, not by the lithotrite, but by the prolonged contact of calculous fragments left lying upon the floor of the bladder. Such being the case, he suggests, as one means of prevention, that the operation of lithotrity be restricted to stones of such a limited size as not to require more than four or five sittings. " With a stone of this size it is probable," says Sir Henry Thompson, " that lithotomy would offer equal, if not better, chances of a successful result."

It seems to the author of this report, however, that the operation of *rapid lithotrity with evacuation,* lately devised by Dr. H. J. Bigelow,[2] is likely to prove more suitable than lithotomy for dealing with cases where the calculus appears to be so large as to yield more débris than the patient's bladder can dispose of in the usual way, and where, on this account, lithotrity, as hitherto practiced, seems an unsafe proceeding. By means of this new method the dangers inherent in the prolonged contact of fragments with the vesical wall are avoided, while, at the same time, the traumatism inflicted appears to be very much less serious than that attending the cutting operation.

[1] The London Lancet, February 2, 1878, page 159.
[2] See the JOURNAL, February 28 and March 7, 1878.

"The next practical question for consideration," continues Sir Henry Thompson, "is the treatment of the bladder itself when phosphatic deposits and concretions are formed there, and show a tendency to remain, or after expulsion to be again produced. The first condition indisputably necessary to success is that the organ, if incapable of emptying itself, should be artificially emptied by the patient in the easiest manner as often in the twenty-four hours as his comfort demands, and never less than twice a day, however small the quantity left behind. Next, as organs thus affected are by no means always quite emptied, even by the catheter, a small quantity of warm water should be injected once, twice, or thrice daily after catheterism, to wash out the remaining urine, if any such there be, and the phosphatic precipitate which will be certainly found therein. . . . . The bladder being thus kept in good sanitary condition, the next consideration is, What agents are to be employed to promote healing action in the diseased mucous membrane? The best are salts of silver, copper, and lead, very weak solutions of which should be used at the first occasion of applying them, watching carefully the result before augmenting their strength, and doing so very gradually. The nitrate of silver should at first not exceed in strength the proportion of one grain to four ounces of distilled water; even one to six ounces is preferable if a patient is more than usually susceptible. It should always be preceded by a cleansing or deodorizing injection, to remove from the surface to be acted upon the muco-pus which is coagulated by the solution of silver, and tends to hinder contact with the agent. This injection is to be employed in the gentle manner directed above for the first application. If very little inconvenience follows, a slightly stronger solution should be used after an interval of two or three days, always avoiding an increase in strength sufficient to produce any severe or long-standing pain. Sulphate of copper should be applied in the same proportion, namely, one grain to six or four ounces of distilled water. An acetate-of-lead solution of the same strength is a valuable agent, to be used daily, or even twice a day, by the patient himself; but the sulphate of copper, like the nitrate of silver, is to be repeated only every alternate or third day, according to results."

The Use of Nitrate of Silver in Urethral and Vesical Inflammations. — In strong contrast with the cautious employment of nitrate of silver advised in the preceding paragraph is the practice recommended by Dr. Mercier,[1] of Paris, long known as an authority in urinary surgery. He restricts the use of this agent to the treatment of chronic inflammations, having almost entirely abandoned the abortive treatment of commencing acute gonorrhœa.

In chronic urethritis, or gleet, the strength of the solution and the mode

[1] Du Traitement des Inflammations des Organes génito-urinaires, etc. Par L. Auguste Mercier. Paris. V. A. Delahaye et Cie. 1877.

of application vary according to the site of the inflammation. When the urethritis is limited to the *pars spongiosa*, Mercier uses his mildest solutions, containing from three to eight grains dissolved in four ounces of distilled water. Three injections are generally made in the ordinary way, at intervals of two or three days.

When the prostatic urethra is affected, this being, according to Mercier, the most frequent seat of chronic urethritis and its favorite lurking place, a different procedure is necessary. Mercier pointed out as long ago as 1856 that the *pars membranosa* of the urethra, surrounded by striated muscular fibres which constitute the voluntary sphincter of the urinary reservoir, is, as it were, a " divide," as regards the flow of injected liquids. Any fluid deposited within the urethra in front of the membranous portion flows out at the meatus ; while, on the other hand, any fluid injected beyond this point finds its way invariably into the bladder. Knowledge of these facts enables us to limit the action of topical applications to the diseased portion of the canal. In chronic prostatic urethritis, Mercier generally begins with the solutions described above, but often the amount of nitrate dissolved in four ounces of water is increased up to fifteen grains or more. If the bladder contains urine at the moment when the injection is made, the action of the drug will be limited exactly to the prostatic urethra, the salt being at once decomposed upon entering the bladder.

When the vesical mucous membrane requires to be acted upon, in consequence of the existence of chronic cystitis, with or without phosphatic deposits, Mercier has recourse to still stronger solutions, containing thirty, fifty, or even as much as seventy-five grains of the nitrate in four ounces of water, the bladder being in every case carefully washed out with tepid water before receiving the injection. The effects produced are as follows : First, a burning pain is felt, chiefly in the urethra, which is more sensitive than the bladder, and frequent, urgent calls to pass water are experienced. The pain and discomfort are quite intense for fifteen to thirty minutes, and then diminish gradually, becoming quite tolerable in an hour or so, and ceasing completely by night-fall. During the first night succeeding the injection the good effects begin to be apparent, the irritability of the bladder being already somewhat relieved. On the next day the urine is found to be considerably improved in appearance, being much clearer than before, and having lost its offensive smell ; the reaction, if previously alkaline, is now neutral or acid, and the ropy deposit becomes purulent. A single injection rarely suffices for a complete cure, three or four, separated by intervals of three or four days, being generally required.

In the cystitis of females, to whatever cause due, the most frequent origin being childbed, a similar treatment is advised by Mercier. More often than in male subjects, he finds it necessary to bring the solution

into contact with both the urethral and the vesical mucous membranes. In all cases he recommends that the bladder be washed out with warm water a few hours after the medicated injection, in order to remove any clotted masses resulting from the action of the nitrate.

Mr. Christopher Heath,[1] writing upon the treatment of painful micturition in females by dilatation of the urethra, stated that he had treated cases of chronic cystitis, with purulent urine and ulceration of the vesical mucous membrane, by means of strong solutions of nitrate of silver applied with a mop fastened on a wire, through a small vulcanite speculum inserted in the dilated urethra. The solution of nitrate so employed was very strong, containing as much as three drachms to the ounce of water. The effect of this has been in many cases to render the urine acid and clear in twenty-four hours, and the tolerance of the remedy by the bladder was remarkable. Mr. Heath has never seen any harm follow, even where little permanent good was done.

Digestive Derangements in Urinary Diseases. — Professor Guyon, now in charge of the Civiale ward for urinary surgery at the Necker Hospital in Paris, has lately published an elaborate clinical lecture,[2] in which he calls attention to the varied forms and degrees of dyspepsia observed in patients suffering from diseases of the urinary passages. Accurate knowledge and careful observation of these symptoms are of importance in several ways. The disturbances in question are in some cases so pronounced as to distract attention from the primary disease, the latter being unobserved by either physician or patient; or, if noticed, being looked upon as an accidental and unimportant complication. When correctly understood and referred to their real origin, these digestive derangements have a diagnostic and prognostic significance which entitles them to attentive study. They should also be taken carefully into account by the surgeon in connection with the treatment of the primary disease, being the source of valuable indications, both therapeutical and operative.

The class of cases in which the symptoms described by Guyon occur consists chiefly of those in which chronic partial retention of urine has existed for some time as a consequence of some obstructive disease of the urinary passage. Such are cases of urethral stricture of long standing, and cases of prostatic hypertrophy, in which imperfect evacuation of the bladder takes place. Some of the most pronounced cases of urinary dyspepsia are those where polyuria exists in connection with the partial retention within the bladder, and from this and other considerations Guyon infers that renal disease, more or less latent, is largely concerned in the production of the dyspepsia.

The symptoms in question comprise various forms of digestive de-

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[1] See the London Lancet, December 11, 1875, page 858.
[2] Revue mensuelle de Médecine et de Chirurgie. Paris. January and February, 1878.

rangement, from simple chronic dyspepsia to violent "bilious attacks," with vomiting and diarrhœa. They include the following manifestations: loss of appetite, nausea, vomiting, diarrhœa, and constipation. Megrim is also occasionally observed, several cases being cited in which the disappearance and the return of this disorder coincided with the temporary cure and relapse of stricture.

A peculiar appearance of the tongue, which is of a bright red color and extremely dry, is thought by Guyon to be so characteristic of the conditions under which it arises that he calls it the "urinary tongue." The dryness of the mouth and fauces is sometimes such as to engender a condition of "buccal dyspepsia," mastication and deglutition, as well as the taste, being so interfered with that all solid food is persistently refused, whereby the enfeebled condition of the patient is much aggragravated. In such cases the mouth is apt to be invaded by thrush.

Vomiting and diarrhœa are often the predominating symptoms, not only in connection with the severe acute attacks constituting "urethral fever," but also independently of any febrile disturbance. Cases of this kind occur with chronic diarrhœa and vomiting, in which the fatal termination is preceded by a falling temperature. In some of these chronic urinary dyspeptics, severe and persistent vomiting is liable to follow operative treatment. In such cases Guyon thinks that surgical intervention ought generally to be deferred until the strength of the patient has been sufficiently restored by a suitable nutritious diet and by tonics.

These dyspeptic derangements are often of long duration. Eventually a condition of "urinary cachexia" is reached, characterized by extreme emaciation and a yellow hue (not icteric) of the skin, together with a total loss of appetite, nausea, vomiting, and, perhaps, chronic diarrhœa. There is a liability to attacks of irregular intermittent fever, which may occur spontaneously or as a sequel to operations. In some of these cases of cachexia, the surgical treatment, bringing about a complete and regular evacuation of the retained urine, will restore the patient to a condition of fair health, especially if cautiously carried out and preceded by a restorative regimen and medication. But not unfrequently, with patients enfeebled by long-continued suffering and dyspepsia, an operation is but a *coup de grâce*.

The diagnosis consists in recognizing the true character and origin of the dyspeptic symptoms, which in some cases may not at once be obvious. Thus, an old man who thinks himself in other respects in fair health, may come to his physician complaining of loss of appetite, of frequent recurrence of vomiting, of attacks of diarrhœa, of recurring fits of "biliousness," or of megrim, the trouble in question being dependent on the unsuspected presence in the bladder of stagnating urine, due to obstructive hypertrophy of the prostate.

The treatment consists, of course, in removing the primary cause by surgical procedures, insuring due evacuation of the partially retained urine. But if the benefits to be derived from such surgical treatment are incontestable, it is often a very delicate matter, involving considerable risk and responsibility, to carry it out. In many cases the patient must be prepared for operation by a careful medicinal and dietetic treatment, having in view the elimination of the urinary poison with which his system is saturated, and the restoration of his strength. Fcr this purpose Guyon recommends the use of mild laxatives, repeatedly administered, accompanied and followed by various tonics, including alcohol, together with the use of such food as the patient can digest and assimilate. Milk, to the amount of two quarts daily, and raw meat are advised. Friction and massage are also serviceable.

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MASSACHUSETTS MEDICO-LEGAL SOCIETY.

THE second stated meeting of this society was held at the rooms of the Massachusetts Medical Society, 36 Temple Place, Boston, on Wednesday, February 6th, at half past two o'clock, Medical Examiner Alfred Hosmer, M. D., president, occupying the chair.

After the reading and acceptance of the minutes of the previous meeting, Medical Examiner Frederick Winsor, M. D., of Winchester, the corresponding secretary, read an abstract from the reports of the various medical examiners for the past seven months as follows : Four hundred and seventeen views were made, of which one hundred and twelve were followed by autopsies, and of these ninety-five were succeeded by inquests. Twenty cases of death by violence were reported by medical examiners in which no inquests were held. Ninety-four cases were recorded as deaths from natural causes; seventy-seven from railroad accidents ; one hundred and twenty-one from other accidents ; sixty-six from suicide; and forty-seven from violence.

Eighteen cases were followed by prosecutions. Five of these resulted in conviction up to the time of reporting. Of the fifty regular members of this society forty had reported to the corresponding secretary at the date of this report. Lowell is the only city or large town from which no report has come in. The following gentlemen, on nomination by the committee of nominations, were elected associate members : Theodore H. Tyndale, Esq., John C. Gray, Jr., Esq., W. W. Wellington, M. D., Adj. Prof. R. H. Fitz, M. D., Prof. Edward S. Wood. M. D., Prof. O. W. Holmes, Jr.

DR. HARRIS presented a communication on a case in which suspicions of abuse of a child had been held as a cause of its death. The medical examination and autopsy caused these suspicions to be abandoned, because the evidence of death from natural causes was clearly established.

The report of the committee on the law of medical examiners was then read by the chairman of that committee, Medical Examiner Harris, of Suffolk County. In this report the committee commented on the supposed defects in

the present law, and concluded that many of the doubtful points were simply questions of interpretation, and not of imperfect wording of the statute, and that such questions will be quite as well settled by experience and practice as by additional legislation. The committee consider that the present provision for mileage is in many cases insufficient, but as this allowance can be increased at the pleasure of the county commissioners, it is recommended that additional compensation be asked of the commissioners rather than from the general court. The committee reported that the law thus far is working with the least possible friction, and that it would be unwise and even dangerous to the system itself to ask for additional legislation until sufficient time had elapsed to enable the collection of reliable data from which a sound judgment can be formed as to the exact changes, if any, desirable to be made; and that to ask for a change in the minor provisions of the law at the present time might open a way to changes sufficiently radical to defeat the object of the present system of investigation. Therefore the committee recommend that no action looking to a revision of Chapter 200, Acts of 1877, be taken by the society. This report was then accepted by the society. A report from a special committee appointed July 23d to obtain the opinion of the attorney-general as to the interpretation of certain points in this law was then read by its chairman, Medical Examiner Pinkham, of Essex, and on motion referred to the regular standing committee. After the transaction of certain business of interest only to the members, the society adjourned.

There were present of the active members, Medical Examiners Hitchcock, Hartwell, Morison, Snow, Parker, Gleason, Lamb, Hurd, Harris, Presbrey, Bronson, Irish, Carlton, Russell, Adams, Winsor, Tower, Draper, Pinkham, Sullivan, Abbott, Hildreth, Hosmer, and Amory. Of the associate members, the secretary of the State Board of Health.

It may be of interest to our readers to learn who are the regular and associate members of this society. The following is a correct list to February 12, 1878 : —

Active Members: Medical Examiners Samuel W. Abbott, Middlesex ; J. F. A. Adams, Berkshire ; Robert Amory, Norfolk ; C. A. Bemis, Norfolk ; Theodore F. Breck, Hampden ; J. B. Brewster, Plymouth ; J. R. Bronson, Bristol ; Charles A. Carlton, Essex ; N. S. Chamberlain, Middlesex ; Erastus C. Coy, Franklin ; Marcus F. Delano, Barnstable ; F. W. Draper, Suffolk ; Jerome Dwelley, Bristol ; J. Franklin Dyer, Essex ; D. B. N. Fish, Hampshire ; J. Converse Gleason, Plymouth ; Charles Haddock, Essex ; F. A. Harris, Suffolk ; B. H. Hartwell, Middlesex ; J. L. Hildreth, Middlesex ; J. G. S. Hitchcock, Norfolk ; D. W. Hodgkins, Worcester ; C. C. Holcombe, Berkshire ; A. R. Holmes, Norfolk ; Alfred Hosmer, Middlesex ; Y. G. Hurd, Essex ; J. C. Irish, Middlesex ; H. A. Jewett, Worcester ; Henry Johnson, Bristol ; John B. King, Nantucket ; A. D. Kingsbury, Norfolk ; W. D. Lamb, Essex ; D. W. Miner, Hampshire ; J. Morison, Norfolk ; J. D. O'Connell, Dukes ; G. S. Osborne, Essex ; A. E. Paine, Plymouth ; W. M. Parker, Worcester ; John Pierce, Dukes ; J. G. Pinkham, Essex ; S. D. Presbrey, Bristol ; J. M. Rice, Worcester ; Ira Russell, Worcester ; H. L. Sabin, Berkshire ; G. W. Snow, Essex ; J. L. Sullivan, Middlesex ; C. C. Tower, Norfolk ;

J. H. Waterman, Hampden; J. W. Winslow, Hampshire; F. Winsor, Middlesex.

Associate Members ex officiis: Attorney-General Hon. Charles R. Train, Boston; District Attorneys, Hon. George Stevens, Lowell; Hon. Asa French, Braintree; Hon. D. W. Bond, Northampton; Hon. Edgar J. Sherman, Lawrence; Hon. H. B. Staples, Worcester; Hon. Oliver Stevens, Boston; Hon. George Marston, New Bedford.

State Board of Health: Hon. H. I. Bowditch, M. D., Boston; Hon. Robert T. Davis, M. D., Fall River; Hon. Richard Frothingham, Charlestown; Hon. D. L. Webster, Boston; Hon. J. C. Hoadley, Boston; Hon. T. B. Newhall, Lynn; Dr. C. F. Folsom, Boston.

Associate Members by Election: Theodore H. Tyndale, Esq., John C. Gray, Jr., Esq., W. W. Wellington, M. D., Adj. Prof. R. H. Fitz, M. D., Prof. E. S. Wood, M. D., Prof. O. W. Holmes, Jr.

The blank forms for reporting cases coming within the jurisdiction of the medical examiners are in detail as follows : —

1. View of body in town or city of ——, county of ——, locality ——. 2. Date and hour. 3. By whom summoned. 4. Sex, age, nationality. 5. Name and residence. 6. Position and condition of body. 7. Circumstances determining decision of medical examiners. 8. Autopsy and its results. 9. Microscopical and chemical examination. 10. Inquest, prosecution, conviction.

The announcement was made that the afternoon of Tuesday, June 11th, preceding the annual meeting of the Massachusetts Medical Society, had been set aside by the committee of that society appointed to procure scientific papers to be read before the members of the society, in order that the Massachusetts Medico-Legal Society might furnish the communications from its own members.

A MANUAL OF NURSING.[1]

THIS little book is an outgrowth of the increased interest taken of late in the education of specially trained attendants for the sick. Very few years have elapsed since any ignorant old crone who could wash a baby and give it enough of "dalby," make a poor gruel, and tyrannize over the household while doing it was supposed to be indispensable to every lying-in room.

The energetic and intelligent labor of a few ladies, with the Bellevue Hospital for a field of operations, has resulted in the awakening of an interest throughout the country, manifested by the organization of training schools in other large cities. From these we may reasonably hope for a more responsible class of nurses, women better born, better bred, better qualified in every way. The Manual evidently aims at something higher, something more of intelligence, culture, and self-sacrifice than has characterized the nurse of the past.

Some parts of the book would at first sight seem to belong rather to the physician or surgeon than to the nurse, to the hospital superintendent or the

[1] *A Manual of Nursing.* Prepared for the Training School for Nurses attached to Bellevue Hospital. New York: G. P. Putnam's Sons. 1878.

head of a family than to the subordinate employee. The kind of bed or mattress, for instance (page 11), is not usually optional with the nurse, nor should we all be quite so positive about the " woven wire " bed. The treatment of " emergencies," as burns, fractures, hæmorrhages, bites, sunstroke, etc., are matters which the sufferers will be more likely to consider as belonging to the surgeon, not the attendant, and if it be in hospital there is always the house medical officer in the absence of his chief.

In the chapter on Monthly Nursing, also, some of the directions are more appropriate for the medical attendant than the nurse. In no department of her vocation is a nurse's irresponsible independence more dangerous to the patient. The physician alone is held responsible, and no nurse should be tolerated who ventures to assume authority not expressly delegated by him. The instructions as to feeding the child soon after birth, washing its mouth, etc., are open to criticism. The direction to make firm pressure upon the abdomen after the head is born may well be questioned. The worst ruptures are often due to the passage of the shoulders, and unless there be positive strangulation by the cord it would seem much wiser to instruct the nurse to do nothing to hasten delivery.

These remarks are not made to depreciate the value of the book; far from it; it is on the whole a step in the right direction. Every endeavor to train a better, more educated class of attendants should and will meet with the cordial approval of those who have experienced the ignorance or stupidity, or worse, of the old régime, and it is readily admitted that a knowledge of details, to some extent indeed a pathological knowledge, is desirable for them; but at the same time it cannot be well for any of the parties concerned to obliterate in the slightest degree the broad lines of demarkation between the authority which directs and the instrument for carrying those directions into effect. So far as they go, the instructions as to washing, dressing, and feeding of patients, the administration of medicines, the remarks on ventilation, contagion, disinfection, etc., are concise and clear, and should be in the hands of every head of a household as well as of every nurse.   G. H. L.

CLAUDE BERNARD.

THE French medical journals bring us the particulars of the death of Claude Bernard, a brief announcement of which was made in the JOURNAL of February 14th. This eminent physiologist, having suffered since last December from a severe disease of the bladder, died on the 10th of February in the sixty-fifth year of his age of a pyelonephritis with uræmic complications. France has thus to deplore the loss of a savant who has been, during more than twenty years, her acknowledged leader in physiological science.

It is interesting to notice that Claude Bernard, notwithstanding his great natural qualifications for experimental physiology, seems to have been somewhat slow in discovering his true vocation. At first pharmacy, and afterwards literature, occupied his attention. As the successful author of a *vaudeville* performed at Lyons, he seems to have come to Paris with the intention of bringing out a new work, a tragedy, on the metropolitan stage, and of devoting him-

self to a literary life. Persuaded to abandon this project by the advice of Saint-Marc Girardin, he entered upon his medical career, and in 1839 we find him enrolled as *interne des hôpitaux*. In 1841 he was appointed *préparateur* in the laboratory of Magendie, and two years later became doctor of medicine at the age of thirty years. Although from this time onward Claude Bernard was laboring in the field where he was destined to win his laurels, it was only ten years later that he seems definitely to have abandoned the intention of practicing his profession and to have devoted himself wholly to studying and teaching experimental physiology. The chair of general physiology was created for him, and in February, 1854, he delivered his first course of lectures. His great ability, both as an investigator and as a teacher, was at once apparent, and from this moment his success was assured. Honors and titles were showered upon him in rapid succession, culminating in 1869 in his admission to the French Academy as the successor of Pleurens, and in his appointment as senator under Napoleon the Third.

Claude Bernard possessed in an eminent degree those qualities which secure success, both as an investigator and a teacher. His published works bear ample testimony to his experimental dexterity, his rigorous methods of research, and his skill in imparting information. It is true that in the latter years of his life, under the pressure of new duties connected with his accumulating honors, he seems occasionally to have allowed his desire that each year should be marked by new physiological discoveries to lead him into statements which had not received that thorough experimental verification to which earlier in life he had been accustomed to subject every physiological hypothesis. These cases were, however, few in number, and no one was ever readier than Claude Bernard to revise former statements in the light of new observations, and probably no investigator who has contributed so largely to the advancement of his chosen science ever made fewer assertions which have not received ample confirmation from subsequent researches.

Nearly every department of physiology has been illumined by the genius of Bernard. An enumeration of his works would resemble a table of contents of a text-book of physiology. If any one of his discoveries is to be mentioned as of preëminent importance for the progress of science, that of the glycogenic function of the liver is entitled to this distinction. It may yet be shown that Bernard's views of the various processes connected with glycogenesis require some modification in their details, but the brilliancy of the original discovery, and the patience and devotion to truth with which through his whole life he sought to confirm and extend it, will ever be regarded as Bernard's strongest claims to be considered the leading physiologist of his time.

MEDICAL NOTES.

— The *Deutsche med. Wochenschrift* states that Lister's method of dressing wounds, after a careful trial in the Marine Hospital at Pola, has been introduced into the Austrian marine service, where its use is obligatory.

— At the opening of the new Physiological Institute in Berlin, Professor

Dubois-Reymond made the following interesting remarks, which we find in the *Allgemeine Medicinische Zeitung:* " I stand at the goal of twenty years of labor and look with satisfaction upon the palace which has been consecrated to science. And now that this house is about to be consigned to its destined purpose, I feel constrained to glance backward over the past. With the most profound gratitude I recall to memory those who directly or indirectly have made the erection of this building a possibility. At the right and left of the entrance you may see the portraits of the two men who opened the way for physiology in Germany. These men were Haller and Johannes Müller. By the ordering of chance, precisely one century has elapsed since the day of Haller's death. Although in his day physiology achieved less liberty than was already possessed by anatomy, physics, chemistry, astronomy, etc., it nevertheless was Haller who made physiology independent.

" During the period when Helmholtz, Ludwig, Brücke, Donders, and Claude Bernard sat at the feet of Johannes Müller, there were no physiological laboratories in existence. They were not necessary, for physiology was based only upon the doctrines of subjective ideas, and it was but seldom that one was able to see a microscopic preparation.

" Between the years 1830 and 1840 Liebig created chemical laboratories; between 1840 and 1850, Purkinje opened in Breslau the first physiological institute, and his example was followed in other universities. But while the methods of research in physics, chemistry, etc., are of a similar nature, physiology demands a variety of resources. She asks for a physical, a chemical, a vivisectorial, and a microscopical department. To the gratification of this demand Berlin, in the past, has offered many impediments, which for the most part were based upon the fact that the university has been exceptionally fettered for means. But you now see the building of the Physiological Institute in a state of completion. This will give you a satisfaction which earlier generations were painfully forced to deny themselves. The perfect condition of what has been prepared, it is to be hoped, will bring you most blessed results. The greatest painstaking has been given to the department of vivisection. To the recently arisen adversaries of this branch it is only necessary to say, ' For every dog's life that is saved mankind must pay a human life.'

" With the means now at our control, the upward flight of science should keep pace with the facilities which are here provided. But chemical laboratories have been active for many years, and yet have not made a Mitscherlich, a Rose, or a Liebig, an every-day occurrence. Why? For this reason : science is advanced by talent, but *talent is a provision of nature.*

" Within a short process of time, eight professors in ordinary have, one after another, come forth from the musty old rat holes of the former physiological laboratory. But, although we have a right to demand that each of them shall be master of his mother tongue, it must be said that each in himself is so little that to expect either one of them to be a perfect physiologist might as justly be required of a newly-fledged graduate. But we may intrust to them the doctrines, the spirit, and the research of physiology. To impart and to demonstrate these to you is what has called us together. Let each now turn to his special task."

— The Pesth *Medicinische Presse* says that Professor Hyrtl, who retired from public life some years since, and has been residing near Vienna, has lately completed a lexicon of terms used in medicine. The book will be warmly welcomed by medical men who go to Germany to study.

— Mr. Lister, in removing a large papillomatous tumor from the larynx was obliged to remove the vocal cords also. The patient subsequently recovered, and in spite of the absence of the cords can talk quite distinctly. By careful examination Mr. Lister discovered that vocalization was accomplished by the vibration of the aryteno-epiglottic folds. He had by previous experimentation found that the stertor in chloroform narcosis was due to the same form of vibration.

— Professor Depont, in a clinical lecture on the Influence of Pregnancy on Suckling, concludes by saying, "Whenever a woman asks you whether, having become pregnant, she ought to continue to suckle her infant, you should reply in the negative, and advise her to procure a nurse. For you may be certain that the disturbances of which I have given you but a very faint sketch, if they have not as yet been produced, will manifest themselves before long to the great detriment of the child's health."

— Dr. Luton, of Rheims, has radically cured congenital inguinal and umbilical hernia by the hypodermic injection of ten drops of a filtered saturated solution of common salt. The *Bulletin de Therapie* for December 30th gives the details.

— The Philadelphia *Druggist and Chemist* announces that at a recent meeting of the Pharmaceutical Association of that city there was displayed a collection of American drugs which are to be placed on exhibition at the Paris Exposition, and will subsequently be presented to the Paris College of Pharmacy. It is proposed by the Philadelphia College of Pharmacy to make similar donations to colleges in various other countries of Europe.

— The *Gazette medicale de Strasbourg* states that Dr. Riedinger, after an amputation of the thigh, arrested hæmorrhage from the bone, which had resisted all other means, by introducing pieces of catgut into the bleeding orifice.

— "The last dose from a bottle containing a mixture of strychnia and bromide of potassium," says the *Detroit Medical Journal*, "poisoned the patient. The bromide had precipitated the strychnia."

— The *Medical Times and Gazette* says that Professor See, of Paris, has found a relief from asthma in inhalations of the iodide of ethyl.

— In reference to a recent brilliant lecture on oil-paintings, delivered by Liebreich, ophthalmic surgeon to St. Thomas's Hospital, the British *Medical Journal* remarks that "the number of medical men who find time, in the midst of busy practice, to devote their leisure to artistic and scientific pursuits, sometimes cognate and sometimes altogether diverse from their medical studies, is on the increase; and the feeling which existed that medical men should, as far as possible, in their pursuits, stick to the shop, has yielded to the more general spread of culture, and to the opinion that many-sided interests and varied culture are not only compatible with the highest grades of skill, but may indirectly conduce to it."

— The Society of Biology of Paris have already set on foot subscriptions to a fund which will be devoted to the erection of a statue to Claude Bernard.

OBSCURE FORMS OF LIVER DISEASE.

Mr. Editor, — Inasmuch as your correspondent, Critic, has labored to place me in the absurd position before the readers of the JOURNAL of having reported two cases of disease of the liver, under the title of Obscure Forms of Liver Disease, where no disease of that organ existed, I respectfully solicit space in your pages in which to vindicate, if possible, the correctness of my diagnosis and to point out some errors in Critic's conclusions.

In the brief prelude to his critical review of my paper as reported, he quotes the words "the paper was briefly discussed," intimating by subsequent language that the society held the same view of the paper as he did.

For the critic's information I will say that as a matter of fact the papers read before the Hampden District Medical Society are almost never discussed, *even briefly*, no matter of what character or quality ; hence this fact may possibly divest the phraseology of the reporter of some of its import as divined by the lively imagination of the critic.

Again, Critic begs to present an "*imaginary discussion*, which in the minds of not a few of the intelligent members of the society," he says, " must doubtless have been carried on, although the record unfortunately fails to give the details."

Does Critic suppose that the secretary of the society in question can report the "*imaginary discussion*" which may be going on in the minds of the members of the society ? No one in these parts, that I know of, claims the power of divination or prophecy. That, evidently, is peculiarly the province of Critic.

Let me assure him, however, that he did not read the "intelligent minds" of this society correctly, for all who have seen Case I., and all who gave any expression of their views of the case at the meeting, agreed with the author of the paper, and do so now.

Before proceeding to consider the questions and answers of Critic, I wish simply to say that I stated in my original paper read before the society that I purposely withheld my own diagnosis of the cases (other than that they were cases of liver disease), and neglected to furnish complete data, in order to draw out the opinions of members and to stimulate discussion. I did not suppose there would arise a critic so verdant as to fancy that I should, or could have failed to diagnosticate "severe renal disease," when the symptoms present would have rendered it self-evident to any student who had attended a single course of lectures, or to a mere tyro in medical science. I thought that any critic would accord to me the possession of a grain of common sense, even in the absence of the information which he thinks I *could not* have given because I *did not*. The "renal disease" was one of the very things which I pointed out originally to the society as tending to *obscure* the *hepatic affection.* So here I must rob Critic of his pretended claim of first discovering the "renal disease."

Critic asks, "What proof have we that the liver was affected in the first case ?" Let us see.

In the first place the patient, as I said in my original communication, was seized with violent pain in the epigastric region, the pain extending through

to the back and upward into the thorax, accompanied with chills, etc., followed by considerable febrile reaction, which continued for three or four weeks, according to the statements of the attending physician. His diagnosis of the case at the outset, it will be remembered, was "congestion of the liver," and the fever which followed he styled "*bilious.*" Now will Critic please take notice that there had been no pain whatever in the renal region until after the lapse of several weeks, and after the medical attendant had applied his blisters there. At this stage, icterus, intense and persistent, ensued.

Touching this point Critic says: "Only when that pain was severest was there icterus." If he will now refer to my language as reported he will observe his error. It reads: "The paroxysms of pain are always followed by *greater intensity* of the jaundice," etc.

Now, says Critic, "the question arises whether a yellow skin and some light-colored dejections (intermittent, according to the above-named pain) ought to lead us to suspect hepatic disease as the chief trouble." His answer is, "I think not." Certainly not. But the "yellow skin" and "light-colored dejections" were not intermittent, and have not been to this date, March 20, 1878. They have been continuous since October last, varying, as I said, only in degree. Here Critic asks, "What have we?" and says, because of imperfect report, he cannot exactly say; but owing to the fact that the first physician found enlargement *behind* the right hypochondriac region he is led to ask whether a nephritic or perinephritic abscess may not explain the whole matter, and should not the swelling in the back have been explored by the aspirator?"

Just here let me ask Critic, in case he were called upon to examine a patient for enlargement of the liver, whether he would expect to find the external evidence of it anteriorly or posteriorly? The swelling "*behind*" was all a *myth*, spoken of as a joke, so alluded to in my original paper; hence the idea of an abscess is exploded, and the call for the use of the aspirator was only in Critic's imagination.

Critic asks: "Was there any distinct tumor felt between the front wall of the abdomen below the line of the umbilicus and the renal region?" No, not the slightest indication of one.

Critic again remarks that "if the palpation indicated had been made it might have helped the diagnosis." It *was made*, and it did help the diagnosis of the *hepatic affection*, for it revealed, as I said before, well-marked diminution in the area of hepatic dullness, indicating contraction and atrophy of the organ.

Regarding the purpura and jaundice, which Critic says might readily have followed as consequences of local pressure or general cachexia, etc., I ask if they are not much more apt to attend affections of the liver than those of any other organ?

The syncope, palpitation, and dyspnœa, which Critic says are common accompaniments of renal trouble, also attend diseases of the liver, and almost always hysteria, of which this patient has been a notable sufferer for many years. Thorough auscultation and percussion of the heart and lungs revealed no disease of these organs whatever, those phenomena having been purely nervous and sympathetic in character.

Critic adds: "The records of the secretary of the society do not give any reply to the critic, although doubtless one was given, mentally at least, and I sincerely wish we could see it."

I don't know how Critic can be accommodated with *seeing a mental reply,* but the secretary of the society gave his verbal diagnosis of *hepatic disease* in Case I. from symptoms described, and doubly confirmed by having seen the patient with me. Other "intelligent minds" have arrived at the same positive diagnosis. Critic is at liberty, however, to consult the secretary *ad libitum,* and need not rely upon my statements, which he has put himself to so much trouble to disprove.

The following are the evidences of liver disease in Case I.: (1.) The peculiar earthy, sallow, jaundiced color, dryness and harshness of the skin (which has continued unremittingly for a period of six months), and emaciation. (2.) The great disturbance of digestion, nausea, distress in the epigastric region, and inability to digest food. (3.) The character of the stools, which, though occasionally indicating the presence of bile, have by far the greater portion of the time been clay-colored and of pasty consistence, which persistent character can never be traceable to renal or other disease. (4.) Hæmorrhages from the mucous cavities, uterus, rectum, bladder, and nares. (5.) The presence of the coloring matter of the bile in the perspiration, and abundance of bile in the urine. (6.) The very well-defined diminution in the area of hepatic dullness, indicating atrophy of the organ. (7.) The large and numerous ecchymoses, purpuric spots on the surface of body, which, while they may attend disease of other organs, or result from general cachexia, most frequently and almost always attend certain liver affections.

Now concerning Case II., Critic will please consider the fact that during the first attack of his illness he was attended by another physician, who found at that time no pleurisy, no pulmonary trouble excepting a common cough. This statement I also made in my original paper read before the society. I am not responsible for its not appearing in the report. This physician regarded the whole trouble then as due to liver disease, and so treated the patient. Therefore "his going to work before being fully recovered," his second attack two or three months later, could with no propriety be claimed to be due to "neglected pleurisy." Critic says: "Proper precautions were not used, and auscultation in the earlier period of the disease was not made." This is an unwarrantable assumption on his part. Does he suppose that any physician of ordinary common sense would fail to avail himself of such valuable aids to diagnosis?

I have nothing to say about the "proper precautions," but I do say that auscultation was made early in the first attack by the attending physician, who found no thoracic disease, neither did the patient complain of any, excepting the cough already referred to. Perhaps Critic will be gracious enough to admit that a violent cough may attend diseases of other organs, though the lungs be perfectly normal, — free from any organic disease, or inflammation of the pleura.

When I was called to see him at the commencement of his second attack, Critic will please take notice that I say the patient was taken with chills,

with great pain and tenderness in the hepatic region. There were frequent rigors and exacerbations of fever for a week or two. The pain and tenderness extended upward, when the cough constantly increased, and respiration grew more painful. The pleurisy was evidently caused by the extension upward of the inflammation from the liver, involving the pleura. Auscultation and percussion revealed no disturbance of the chest wall excepting at its lower part, and certainly there was not effusion in quantity sufficient to produce fullness or bulging in the hepatic region, provided pleurisy was the disease *per se* and the liver sound.

Critic will, perhaps, agree to the statement that in inflammatory affections of the liver, especially perihepatitis and abscess, pleurisy with more or less effusion is a common result simply as a complication. If not I will respectfully refer him to the authorities who claim to be experts concerning these cases, and have a good right to make such a claim by virtue of their recognized ability.

If Case II. were a case of empyema, as Critic claims, he must acknowledge it to have been one with far less constitutional disturbance and respiratory difficulty, as well as a better and more prompt recovery, than is wont to result in such cases. Now I will endeavor to answer his question, "What proof is there of liver disease in Case II. ?"

(1.) The fact of priority of pain, tenderness, and well-marked fullness in the hepatic region, even before pleurisy was manifest or complained of by patient. (2.) The sallow complexion, frequent rigors, fever of a bilious type, and repeated exacerbations of the same; the appearances of the tongue and of all of the excretions of the body. (3.) The location of the external opening, the direction of the fistulous tract downward toward the liver as indicated by the flow of pus from external pressure, and, more than all, the character of the pus, which of itself was sufficient to settle the question of diagnosis.

There are methods of treating pus from empyema and hepatic abscess which show the fibrous tissue of the former and the presence of hepatic tissue in the latter. Now, if Critic is not familiar with this important aid to diagnosis, I will hold myself ready to give him clinical instruction whenever a good opportunity shall present itself; and if the reporter failed to furnish him with satisfactory data, I trust the scales will fall from his mental vision so that the two cases of liver disease may be no longer veiled in such *obscurity* that he will be unable to discern them.

Again, a word about the information Critic has so kindly furnished contributors to the JOURNAL regarding the *proper method* of reporting cases. On this point I agree with him fully; but in criticising my cases he should have considered the fact that I had a special purpose in presenting the cases in the form I did before the Hampden District Medical Society, namely, to have the members give their individual diagnosis, and to provoke discussion. The reporter, or (as in this case) the secretary, of any society is supposed to report proceedings correctly, not alter them to suit others, and if he reports them to any journal the editors exercise the right of rejection. Any critic has an equally good right to make any reasonable criticism, and it is perfectly proper for him so to do; but when he labors to make a fool of any contributor, the

right of vindication should be as freely given the latter as the privilege to assail has been given the former.

In conclusion let me add that I have seen soldiers on the field of battle manifest commendable courage in firing at the enemy when they could readily skulk behind trees and stone-walls, and no longer; and I held about the same opinion of them as I now hold of any medical man who will assail the opinions of a contributor, and then hide behind the mask of a common *nom de plume*, not possessing the courage openly to father his own convictions.

GEO. S. STEBBINS, M. D.

COMPARATIVE MORTALITY-RATES.

	Estimated Population, July 1, 1878.	Deaths during week ending March 23, 1878.	Annual Death-Rates per 1000 living.		
			For the Week.	For the Year 1877.	Mean of ten Years, '68–77.
New York.	1,093,171	567	26.97	24.32	28.71
Philadelphia.	876,118	269	15.96	18.80	21.54
Brooklyn.	549,438	188	17.79	21.51	25.50
Chicago.	460,000	130	14.69	17.83	22.39
Boston.	375,476	132	18.28	20.10	24.34
Providence.	100,000	38	19.76	18.81	19.20
Lowell.	55,798	21	19.62	19.09	22.50
Worcester.	54,937	20	18.94	14.07	22.30
Cambridge.	53,547	15	14.56	18.69	20.83
Fall River.	53,207	13	12.71	21.35	24.96
Lynn.	35,528	20	29.28	20.42	19.67
Springfield.	33,981	12	18.38	16.04	19.77
Salem.	27,140	10	19.16	20.38	21.15

BOOKS AND PAMPHLETS RECEIVED. — Injuries of the Eye in their Medico-Legal Aspect. By Ferdinand von Arlt, M. D., Professor of Ophthalmology in the University of Vienna. Translated by Charles S. Turnbull, M. D. Philadelphia: Claxton, Remsen, & Haffelfinger. 1878.

Second Annual Report of the Managers of the State Asylum for the Insane at Morristown, N. J. October 31, 1877.

Twelfth Report of the Board of Trustees of the Connecticut Hospital for the Insane. 1878.

Note on Hydro-Bromic Acid. By Edward R. Squibb, M. D., of Brooklyn. (Transactions of the Medical Society of the State of New York.)

Suicide not Evidence of Insanity. (Medico-Legal Society of the City of New York.) Hon. O. H. Palmer.

Sixty-Fourth Annual Report of the Trustees of the Massachusetts General Hospital. 1877.

Chemical Experimentation, being a Hand-Book of Lecture Experiments in Inorganic Chemistry. By Samuel P. Sadtler, A. M., Ph. D., Assistant Professor of Chemistry in the University of Pennsylvania. Louisville: John P. Martin & Co.

Suspension as a Means of Treating Spinal Distortions. By Benjamin Lee, A. M., M. D., of Philadelphia. (Transactions of the American Medical Association.)

Proceedings of the Louisiana State Medical Association, the Constitution and By-Laws. New Orleans. 1878.

The Ætiology of Intemperance. By Charles W. Earle, M. D., Physician to the Washingtonian Home, Chicago. (Supplement to the Seventh Annual Report.)

Scarlatina in Chicago. By Charles W. Earle, M. D.